Space Center
Roundup

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OUT OF THIS WORLD

NASA Web site attracts millions

By Eric Raub

Flying through space is one continuous photo opportunity, and NASA astronauts have taken advantage of their unique perspective since the Mercury missions. Yet, for years, the rolls and rolls of film sat hidden from eyes that could have been admiring them.

That is until Internet technology exploded into popular culture and Dr. Kamlesh Lulla got involved.

Dr. Lulla, Chief of the Office of Earth Sciences, is just one of the driving forces behind the Earth from Space Web site, located at http://earth.jsc.nasa.gov/. The Web site is a collection of the "greatest hits" of the hundreds of thousands of images taken by astronauts.

More than 400,000 pictures have been taken from space with hand-held cameras aimed by the men and women of the Astronaut Corps, creating an enormous database of high-quality images. Unfortunately, for decades this database has been beyond the reach of the general public due to the limitations of technology.

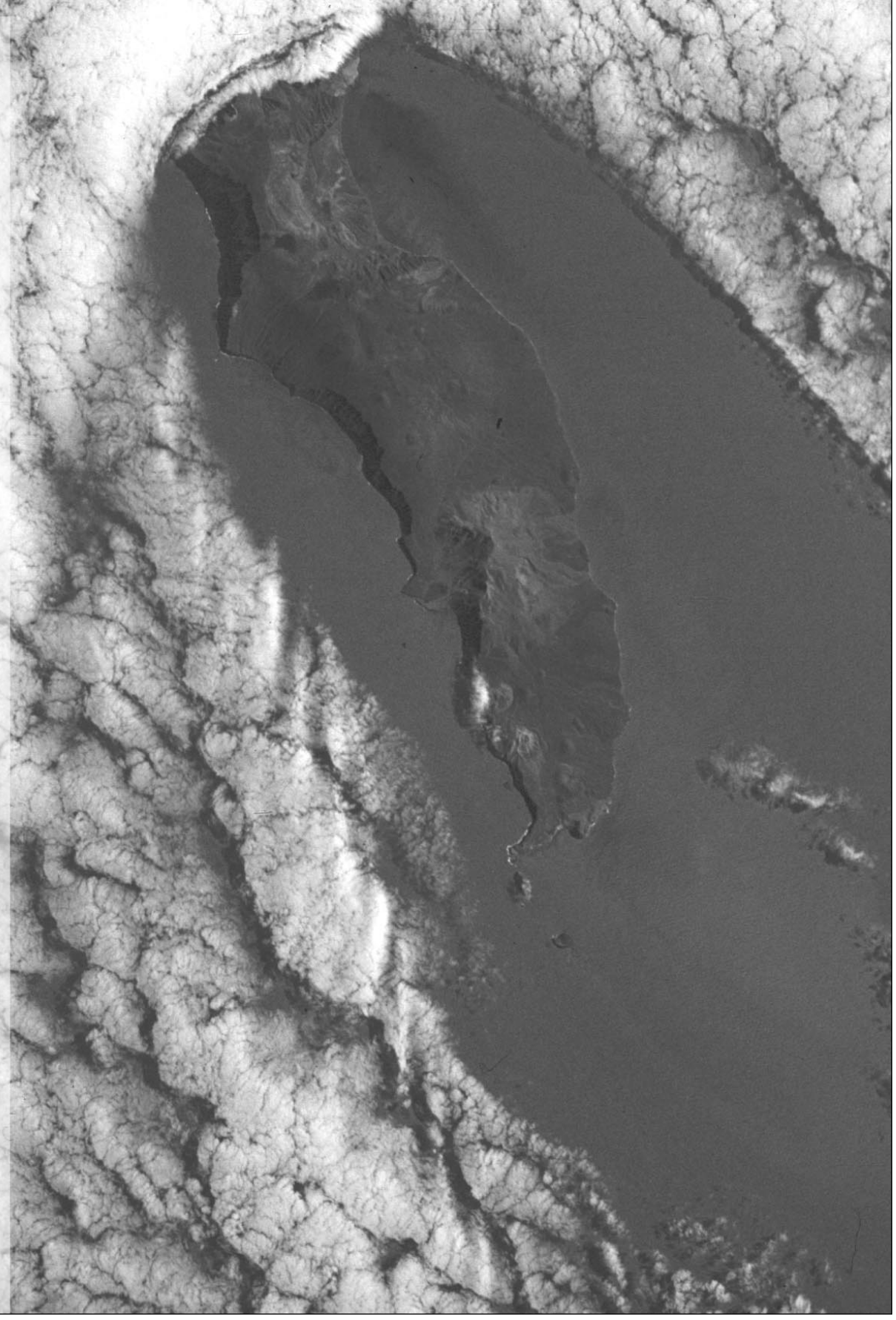
"In the past we used to use slide sets and videodiscs," Lulla said. "These were old technologies. I thought of using the wonderful technology of the Internet to display these images."

The site is actually the result of the efforts of three offices: The Earth Science and Solar System Exploration Division, the Flight Crew Operations Directorate (FCOD) and the Information Systems Directorate (ISD).

Lulla said they all work together for the benefit of scientists, the public and even kids who just want to see if they can find their town in a view from space."We believe that our job is to make smart astronauts earth-smart, and make our country's kids earth-smart," Lulla said. "It is a team effort. We are the scientists and we pick the photos and write the captions. But ISD makes them Internet friendly. FCOD gives us advice on how to use them. It really is a good example of teamwork between departments at NASA."

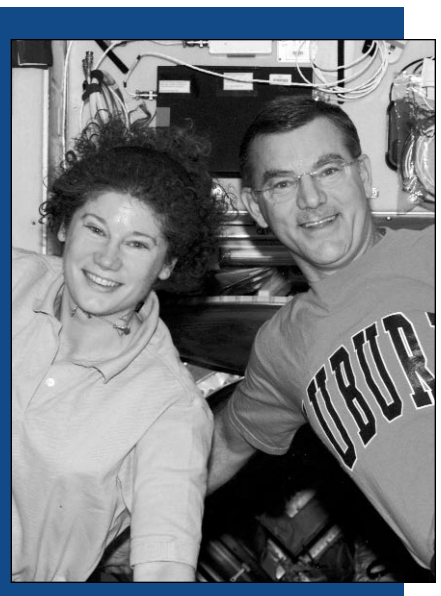
The Web site's collection is vast –there are pictures of landforms, natural phenomena, cities and practically everything else that can be seen from space.

Continued on page 2



NASA JSC STS043-076-061

The photo above is one of numerous images featured on the Earth from Space Web site.
The elongated, volcanic island of Guadalupe (latitude 29 degrees north) is located in the Pacific Ocean approximately 180 miles (290 kilometers) off the coast of west-central Baja California, Mexico. The island is an extinct volcano with a maximum elevation of approximately 4,500 feet (1,370 meters) above sea level. The photograph illustrates the blocking impact that the elevated terrain can have on low stratus clouds as the clouds move southeastward. The island creates a 'cloud wake' downstream (leeward side) of the island, a rather common phenomenon when low stratus clouds pass islands that have adequate elevations to form an impediment to the clouds' normal flow. The Mexican government has established the island as a wildlife preserve, especially for the protection of elephant seals.



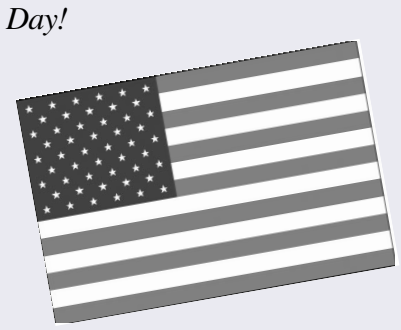
Susan Helms and Jim Voss wish America a happy Fourth of July

Jim Voss: *Welcome aboard the International Space Station. I'm flight engineer Jim Voss along with my crewmate and fellow flight engineer Susan Helms. We're orbiting the Earth this Fourth of July with our Commander, Cosmonaut Yury Usachev. Greetings to all Americans who are watching us from the steps of the capital building and from throughout the world.*

Susan Helms: *Today is the Fourth of July, one of the most special days of the year. It's the day that we celebrate our independence and our freedom. It's also the day when we give thanks to our ancestors who fought hard to make this a reality. And most importantly, it's the day that we recognize within ourselves that patriotic and special uniqueness that we can only call "American."*

Jim Voss: *245 years ago, our founding fathers brought together many different peoples into one nation. Today, as we work 240 miles above the Earth, we hope this grand project in space will bring together many nations, working to create a better life for all humanity. To all Americans...*

Both: *Happy Independence Day!*



Veteran Astronaut Brian Duffy retires

By Eric Raub

Astronaut Brian Duffy (Col., USAF) recently retired from the astronaut corps to accept a senior management position with Lockheed Martin.

Duffy, a veteran of four Space Shuttle flights and commander of STS-72 and STS-92, is now in Florida at the Kennedy Space Center. He considers the move to be the best option he had both personally and professionally. He has made a change in his involvement with the space program, but plans on regularly seeing some of his old friends.

"I was interested in remaining a part of the space business," Duffy said. "Coming here to the Kennedy Space Center seemed to be the best thing for me and for my family.... I'll be going back (to Houston) regularly, but I hope to see people I know when they come here."

Duffy's presence in the astronaut corps will be missed. During his 16 years of service his fellow astronauts learned so much from him that some say they still feel his influence.

"He is a natural leader who is sorely missed," said Astronaut Leroy Chiao, Ph.D., who flew with Duffy on STS-72 and STS-92.

"He's one of these guys who teaches you things and, at the time, you don't even realize that you are learning from him," Chiao said. "Whenever I get into a tough situation nowadays, I just think 'What would Brian do?' And the answer always comes."

While Duffy's skills as a leader will be missed at JSC, former crewmates say they will also miss their good friend.

Astronaut Brian Duffy recently retired. He is a veteran of four Space Shuttle flights and was the commander of STS-72 and STS-92.

After spending years proving his abilities, many of his friends will feel a little more comfortable when they strap in for launch at KSC.

"His incredible leadership skills served NASA well in many jobs," said astronaut Pamela Melroy, who served as the pilot on STS-92. "He is a cherished friend to all his crewmates and we will miss him and his family every day... We will all feel very secure launching from KSC knowing that he is in charge of Lockheed operations there."

In his most recent mission, STS-92 in October 2000, Duffy commanded a crew that continued assembly of the International Space Station by attaching the Z1 Truss and a pressurized mating adapter to the vehicle. He logged more than 40 days in space and flew in three different Space Shuttle orbiters.

Duffy believes his astronaut career has been rewarding.

"I not only met but exceeded all of my dreams," Duffy said. "I can honestly say that I gave it all I had and didn't leave anything behind."

As a Space Shuttle pilot, commander, spacecraft communicator and one-time Acting Deputy Director, Duffy had many responsibilities to ensure the success of whatever mission he was given. However, he is always ready to credit the team for the overall success of the human space flight mission.

"I've been honored to have been a part of the NASA/JSC team for the last 16 years," Duffy said. "I've learned that the success of the program is a direct result of the people who dedicate themselves to safely flying missions. They make the very difficult look very easy." ■

Did You Know?

Space Shuttle *Atlantis* is debuting a new engine, called the Block II configuration, during mission STS-104. The improvements over the old Block IIA should allow for safer, more reliable shuttle flights with more time between overhauls.

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NASA Web site attracts millions

Those with a specific subject in mind can search by at least a dozen different variables, such as city, latitude/longitude, date, geographical area, distinctive features, mission, cloud cover and focal length.

The site is also friendly to casual browsers since most of the pictures are only a few mouse clicks away. A clickable map also allows users to see, from beyond the atmosphere, destinations they have never visited.

The site has received awards ranging from Science Magazine's Site of the Year for 1999 to inclusion on several exclusive lists of recommended links. The site's most recent honors have come from the American Association for the Advancement of Science (AAAS) and the National Science Teachers Association.

The AAAS, which placed the site on its Science NetLinks page, wrote a review praising the site's organization and amazing content.

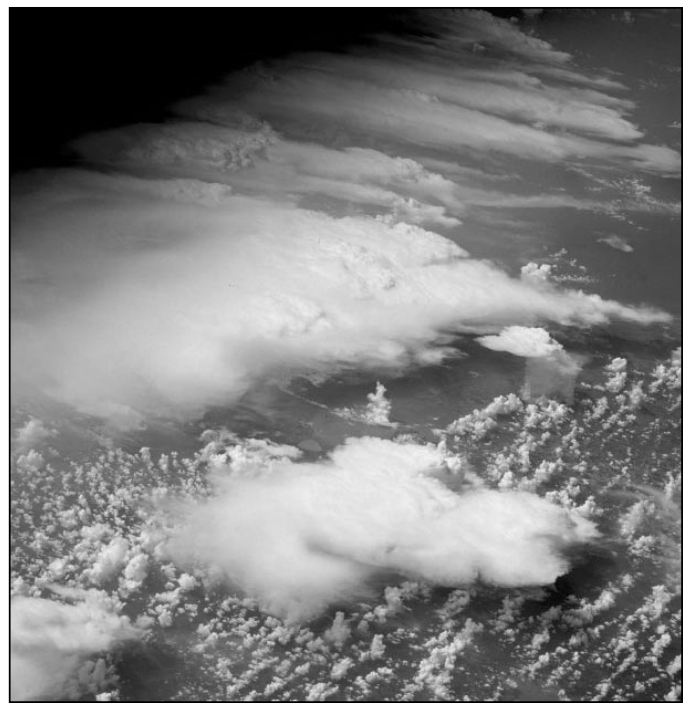
"This excellent site, which offers a well-organized library of images of the earth taken by the astronauts from space, is a testament to NASA's goal of making space imagery accessible to the general public," reviewer Jonathan Gradie wrote. "This organizational approach sparked my imagination and I spent unanticipated, but thoroughly enjoyable, hours looking at cities, islands, volcanoes and any number of natural phenomena from that special perspective of an astronaut."

Accolades for content and technical excellence are only one part of measuring the Web site's success; the other part is how many people visit the site. Over the course of a year, the Earth from Space Web site typically registers between 800,000 to a million "hits," or visits, from Internet users.

"This site is appropriate for anyone with an interest in the earth from space, from student to professional alike," Gradie wrote. "It serves not only as a source of imagery for classroom lessons or student research, but as a link to other wonderful NASA Web sites." ■

Thunderstorms, Upper Gulf Coast, Texas June 1991

A number of large thunderstorms are visible crossing over the upper Texas Gulf Coast near Galveston Bay. Lake Anahuac and the upper portion of Trinity Bay are discernible between the clouds near the center of the image. During the late spring and summer months, thunderstorms will build in the early morning hours out over the Gulf of Mexico and along the Texas coast.



The good, the bad, the strange!

NASA JSC 2001e19252 photo by David DeHoyos

Brandi Jones, left, and Deandra Sanchez face a day's worth of mail in the Information Services Center, located in Building 2.

ISC walk-up service hours are now between noon and 4 p.m. only

What is available to you at the ISC?

- ✔ Lithographs (every shuttle crew, emblems of past programs, planets, astronomical features and more)
- ✔ Brochures on facilities, spacecraft and even the Clear Lake/ NASA area
- ✔ Information pamphlets
- ✔ V.I.P. packets
- ✔ Education packets
- ✔ Bookmarks
- ✔ Posters
- ✔ NASA stickers
- ✔ Teacher guides
- ✔ Aerospace coloring activities
- ✔ Mission patch decals
- ✔ Shuttle glider kits
- ✔ The ever-popular NASA antenna balls

ISC alters walk-up hours to accommodate staff's daily dealings with the public

By Eric Raub

Many at JSC have benefited from the multitude of pictures, information booklets, bookmarks and other NASA material distributed by the Information Services Center (ISC), located in Building 2N in Room 172.

But, the ISC staff performs a lesser known - but equally important - job too. Deandra Sanchez and Brandi Jones serve as the front line for JSC's interaction with the general public.

Just as all of the letters addressed to "Santa" or the "North Pole" eventually end up somewhere, so do all of the letters simply sent to "NASA" or "Space." Those would be the numerous letters on the desks and in the bins and boxes all around the ISC.

While letters will sit quietly on a desk until they can be attended to, phone calls and e-mail demand as much immediate attention as the ISC staff can give to them. The ISC office is the phone number the general public uses for inquiries. They also have hundreds of e-mails addressed to info@jsc.nasa.gov currently waiting for attention.

To accommodate all of the demands placed upon it, the ISC's hours have recently been changed to allow walk-up service between noon and 4 p.m. only. Employees can always fill out a request form, located on the ISC door, if the office is closed. Requests are filled within 24 hours.

"We had to cut back on the hours because of all of the bulk mailings, letter answering, etc.," said Barbara Tomaro, Information and Media Services Supervisor. "It was interrupting the flow."

And what a flow it is. The questions that pour into the ISC daily are as interesting as they are varied.

Many of the letters are from children who have questions about the space program, including the all-time favorite: "How do you go to the bathroom in space?" Other inquirers want information about how to become an astronaut.

Whatever the request, the ISC team has to respond. And while the ISC does what it can to fill the legitimate requests of employees and the general public, it must also deal with those who never ask for anything except attention. The ISC has many colorful characters that stay in constant contact with the office–despite never receiving an answer because they never ask a question.

One such individual sends them an air-mail message across the Pacific, sometimes everyday, with just a thought or suggestion. The person signs each small piece of paper as "Emperor of the Earth."

Unidentified Flying Object sightings are regularly reported to the ISC too. The ISC staff regularly tells those who report their experience that neither they nor JSC has anything to do with monitoring UFO activities.

Also, the staff has received audio cassettes and computer disks that must be turned over to security. That's something the ISC staff is glad to do, given the strange things they have seen, heard and received before.

"Once we got a call from a man yelling that the 'damn Hubble telescope' was taking pictures of him again and we'd better reposition it," said Barbara Tomaro said. "One woman called saying that a laser was being fired at her house, knocking bricks off and chanting 'NASA! NASA! NASA!'"

While their work is demanding, both Sanchez and Jones said they love their jobs.

"We have the second best job here at NASA, in our opinion, besides being an astronaut," Jones said. "We deal with everybody–in-house, outside and astronauts. We are the voice of NASA. Whenever someone calls NASA, they get us." ■

NASA JSC 2001e19253 photo by David DeHoyos

Jones and Sanchez stand in front of ISC shelves containing numerous lithographs, posters and other NASA educational material that is available to JSC employees.

My Favorite Open House Story

Below is a collection of stories submitted by JSC employees detailing each one's favorite Open House memory. All submitted stories, while appreciated, could not be used due to space limitations.

Alice Ayala
JSC-GP

During Open House I greeted and provided information to visitors in the Building 2 auditorium. Whenever visitors came to the booth, I would greet them and also give them a blue NASA antenna ball for their vehicle.

Many of the visitors did not know this was an antenna ball and they would try to bounce it on the floor. I started to inform them that this was an antenna ball–but then some of the people and children would say, "But we have a 'Jack in the Box' antenna ball."

That is when I would reply, "Tell Jack, 'Hit the road Jack! NASA is here to stay and it's the way to the future!'"

The funny part is that on my way home after the Open House event, on Old Galveston Road, someone kept honking and honking their horn at me. I truly did not want to turn to see them. But when I did, there was a car full of people. All of the kids were crammed in the back seat and were all pointing to their antenna. There it was–the blue NASA antenna ball!

These people had recognized me as the lady that told them to tell Jack to "hit the road!" They were all smiling and they gave me a "thumbs up." I just laughed with joy and returned the "thumbs up" sign to them. As I went along driving and they went on their way, I thought to myself, "You CAN make a difference!"

Andres Mur-Dongil
JSC-DM35, United Space Alliance

During Open House, NASA receives a lot of visitors who only speak Spanish. Since I speak both English and Spanish, I enjoy explaining to them in their native language what we do here.

With time, I have come to realize that most of the non-English speaking visitors do not ask questions because they cannot communicate with the volunteers who are working at the different stands. Once these visitors find a person who has the ability to communicate in their native language, the amount of questions they ask is extremely surprising.

For me, working in the Open House is a wonderful experience. I can explain our job and objectives in the space program, and at the same time I can do it in Spanish. The expression in their faces, and their words of appreciation for my time, is the best experience that I get out of working at Open House. The most important thing for me is the joyful feeling of talking about the space program to these visitors who are willing to learn so much about our nation's space program and NASA.

Ron D. Smith
JSC-EM, Rothe Joint Venture

Our laboratory Open House exhibit contained a laser that measured several dimensional devices. There were two technical people manning the booth. An older man, a middle-aged man and a pre-teen boy came to our exhibit.

The pre-teen began to ask us deeper and deeper technical questions about the laser, to the point where we were out of technical answers. All the while the two men stood back observing. The technical depth of the questions showed the boy knew about lasers.

It turned out that the older man was a Ph.D. in physics, as was the middle-aged man and the son appeared to be on his way in the same direction. This was a case where you can never tell the intellect of the people that visit Open House at "big high technology NASA."

Lizabeth Cheshire
JSC-AQ

While working the first Open House, a man and his son walked up and asked about the launch of the Shuttle. He wanted to know where we launched. When I replied Kennedy Space Center in Fla., he told me, no, he wanted to know were we launched locally.

He then pointed toward the Reliant Energy Houston Lighting and Power facility across NASA Road One asking: "When is the next launch from there?"

You have to admit; from a distance there are some similarities to the structures.

Byron Winters
JSC-JC2

It was Open House once again, and as normal I met a small class of students from my old elementary school for the usual song and dance concerning NASA and JSC. This class was particularly special because my 5-year-old nephew Chris was in attendance.

Ms. Stroud, the teacher, introduced me as Chris's uncle, the proud NASA employee that was going to tell the class what he does at JSC. I received a round of clapping and shout-outs that lasted well over five minutes. I didn't understand all of the big fuss–it wasn't like I was an astronaut or anything.

I begin to tell the class the fun stuff kids like to hear, for instance pointing out the MCC and telling them that is where we talk to the Astronauts in space, etc. I also began to tell the class that I am an engineer and the role of my office is to provide facilities for the training of astronauts, and that we build stuff to help the employees do their job. It was at that time that the look on my nephew's face was a look of fear.

Many of the students had questions concerning the life of an astronaut, and how did it feel to be a real live astronaut, and then one asked me, was I not an astronaut? I regretfully said no but explained my role as a NASA employee was just as important.

My little nephew Chris had cheerfully told his classmates that his uncle Byron Winters was an Astronaut of the "United States." Christopher's day of fame quickly went down in flames as it was revealed that his uncle really wasn't an astronaut.

To volunteer for Open House, contact C.C. de la Garza at x31033 or register online at http://www4.jsc.nasa.gov/scripts/openhouse/index.cfm/

Imaginations soar with UHCL's space and exploration program

"American Frontiers: Exploration, Politics and Technology," a newly developed course at University of Houston-Clear Lake, will send imaginations soaring this fall.

"We will look at frontiers in American history as the outer edge of American expansion, as the outer limit of technological and cultural imagination, and as the outer zone of cultural interaction, where peoples and cultures contended with one another and with their physical environment to produce a dynamic that was unique to space and time," said Tyler Priest, professor of history. Priest will teach the class on Monday evenings, beginning Aug. 27.

The course is part of the space and exploration studies concentration in the master of arts in humanities program, which is offered by the UH-Clear Lake School of Human Sciences and Humanities.

This new field of study emphasizes the historical, philosophical and global meaning of the space pioneers' achievement, and analyzes exploration from a multi-disciplinary perspective. Courses in the history, politics and literature of exploration examine the relationship of space exploration to exploration through the ages, and develop intercultural understanding for multi-national cooperation in space.

"American Frontiers: Exploration, Politics and Technology" will focus on a broad range of frontiers–territorial, Indian, Mexican-American, urban, offshore-marine and outer-space–as well as the myth of the frontier.

A bachelor's degree in any field from an accredited institution meets the application requirement for this unique program. Courses are scheduled primarily in the evening, and all classes are held at UHCL, 2700 Bay Area Blvd.

Additional fall courses of interest to space and exploration studies students include "Negotiating Across Cultures" (sociology), "Cultural Diversity" and "Cultural Studies of Law" (anthropology).

For information about the space and exploration concentration and enrollment, contact Gretchen Mieszkowski, director of humanities, mieszkowski@cl.uh.edu, (281) 283-3312; or Ann Hinojosa, advising coordinator, hinojosa@cl.uh.edu, (281) 283-3333.

EXPERIMENT CORNER

Expedition II Science Experiments

HRF - Human Research Facility Rack 1 - Destiny Lab
A laboratory rack that enables scientists to study the physiological, behavioral and chemical changes that human beings experience during long-duration space flights. Provides power, command and data handling, cooling air and water, pressurized gases and a vacuum. Delivered aboard the Leonardo cargo module during STS-102/5A.1 in March 2001. The second rack is scheduled for launch in 2002.
More HRF info:
Expedition Two press kit, p. 17
http://hrf.jsc.nasa.gov/
http://hrf.jsc.nasa.gov/i2.htm
http://spaceflight.nasa.gov/station/science/experiments/hrf.html

H- Reflex: Effects of Spaceflight on Spinal Cord Excitability
Measures the ability of the spinal cord to respond to stimuli after being exposed to microgravity. Two tests were done on each Expedition Two crewmember on their second and seventh days in space. The third and final tests will be done shortly before the crew comes home to look for longer-term effects. The data will help researchers determine if exercise could be made more effective on long-duration space flights. Similar experiments have been flown aboard eight previous shuttle flights.
More H-Reflex info:
Expedition Two press kit, p. 16
http://spaceflight.nasa.gov/station/science/experiments/hreflex.html

For more details, please read the Expedition Two press kit at:
http://spaceflight.nasa.gov/station/crew/exp2/exp2_presskit.pdf

NEWS FROM WHITE SANDS

Flying High

Students from the White Sands area experience microgravity simulations

By Cheerie R. Patneaude

Astronauts do it. Roller-coaster riders do it. So how can others achieve microgravity?

By catching a flight on NASA's KC-135 "Weightless Wonder."

Thirty students and their mentors from two New Mexico high schools and the White Sands Test Facility (WSTF) recently participated in an educational outreach program.

The students were selected from a competition held by WSTF and organized by Pleddie Baker, Technology and Education Outreach Officer. From the eight schools that participated, Mayfield High's "Alternative Cardiopulmonary Resuscitation (CPR) Methods for Microgravity Environments" and Las Cruces High's "Mo'Mentum" proposals were selected for the mission onboard the microgravity simulator aircraft to test their winning theories.

The two teams traveled to JSC April 19-27, where they flew on NASA's KC-135 with their teacher and a NASA mentor. Teachers Jean Irons of Mayfield High and Catherine Massey of Las Cruces High, and mentors Deb Chowning of WSTF and Mike Hallock of Washington International Group WSTF, helped the students with their experiments during flights.

"It was an experience of a lifetime for the students to learn how a real project is designed and tested through NASA," Chowning said .

"The purpose of NASA programs like these is to show students that science is intellectually challenging and fun," Baker said. "The participants will also begin to think about what they want to do when they graduate from high school and may consider a technical field.

The Fly High Program offers students the opportunity to design and conduct an experiment under microgravity conditions similar to orbital space flight. Joe Fries, WSTF Manager, said the program, "excites young adults to persist in their pursuit of a higher degree in the science and engineering fields. I think it's one of the finest hands-on programs: exciting and valuable."

The Mayfield High students wanted to evaluate the timing and chest compression depth using manual techniques and compare those to a mechanical device's. All students were required to complete American Red Cross CPR and NASA-WSTF Critical Flight Handling training in order to qualify for the experiment.

Michigan Instruments agreed to loan "Thumper" for the experiment. A "Resuscitation Annie" configured with an internal data acquisition system was loaned by Southwest Region II EMS, and Wyle Laboratory's Life Science Section loaned a Class III Crew Medical Restraint System.

The test matrix required human subjects to perform straddling and inverted CPR techniques and oversee the operation of Thumper for a minimum of five parabolas. Thumper was on target in both timing and compression throughout the entire parabola.

"It was lots of fun and a great experience. I learned a lot about teamwork and then how to work together," said Justin Lambeth of Mayfield High. "The best thing was that I was experiencing science in the field not learning it out of a book."

The Las Cruces High experiment was designed to demonstrate and confirm the Law of Conservation of Momentum, both linear and angular, under idealized conditions without gravity.

Students used a Ballzooka MP 150 Nerf™ gun to launch an object into motion and then measured the masses and velocities.

The students used a combination of Newton's Laws that define the Law of Conservation of Momentum, where M1 x V1 = M2 x V2 or if the net external force on a system is zero, the velocity of the center of mass of the system is constant, and the total momentum of the system is conserved.

"The whole experience was all pretty much amazing and incredible for my senior year," said Las Cruces High Team Leader Barbara Burkholder. "I learned a lot about responsibility and even more about time-management."

Beth Petersen of Las Cruces High believed flying on the KC-135A was, "the most incredible thing I'll ever do. There was so much work to be done, that I wondered if things were going to be worth it. But I learned so much about myself, mostly that I have to strive to succeed." ■

White Sands celebrates Management Week in America

The NASA White Sands Chapter of the National Management Association celebrated Management Week in America June 3-9. Chapter President Ken Schaaf, who is a Division Manager for the Engineering Department at White Sands Test Facility, urged employees to 'make a point to recognize the good work of all business managers, especially our own at WSTF.' The Las Cruces Mayor and City Council, as well as New Mexico Gov. Gary Johnson, issued official proclamations for Management Week. Schaaf is pictured here holding those two official proclamations.

New state plan aims to clean up Houston's smoggy air

K irk Hummel is an environmental engineer in JSC's Environmental Office. Here the pollution expert discusses the impacts of the new Texas clean air plan for Houston.

The state's blueprint to control ground-level ozone pollution in the Houston area will mean expensive changes for business and industry, and a reduced 55 mph highway speed limit for motorists next year.

Ozone exposure is a concern because it can cause permanent damage to the lungs. Even low-level exposure can cause respiratory difficulty including chest pain, coughing, nausea, throat irritation and congestion. It also can worsen bronchitis, heart disease, emphysema and asthma, as well as reduce lung capacity.

Healthy people also experience difficulty breathing when exposed to ozone pollution. Ozone pollution typically forms during hot summer weather, so anyone spending time outdoors–including children, the elderly, outdoor workers and exercisers–can be affected.

The Houston/Galveston ozone non-attainment area had the most ozone exceedance days and highest peak ozone readings in 1999 and 2000 in the nation. Failure to meet clean air standards by the EPA deadline of 2007 could mean the loss of about $1 billion dollars of annual federal highway funding. Other sanctions could include restricted growth on new and old businesses and possible forced lifestyle changes such as "no drive" days.

In response, on December 6, 2000, the Texas Natural Resource Conservation Commission (TNRCC) adopted a comprehensive smog plan to bring the Houston area into compliance. The goal is a 75 percent reduction of Nitrogen Oxides (NOx), a main ingredient in the formation of ozone. Nitrogen oxides form when fuel is burned with air at high temperatures. The primary sources of NOx are combustion exhaust gases from industrial, commercial and residential sources that burn fuels.

The new regulations will affect a wide range of activities, with the largest share of NOx reduction (90 percent) coming from boilers, furnaces and gas turbines at large industrial centers. Additional NOx reductions will come from car and truck regulation via a new 55 mph speed limit starting May 1, 2002, and expanded auto tailpipe inspections. The new inspections begin in May 2002 for Harris County and 2003 for Brazoria, Fort Bend, Galveston and Montgomery Counties. Chambers, Liberty and Waller Counties will begin the new inspections in 2004.

Most of the impact at JSC will be felt in the Building 24 Central Heating and Cooling Plant. Two existing 60,000 pound per hour steam boilers are planned for retrofit in 2003 and 2004 with ultra low-NOx burners to achieve nearly all of the required reductions.

There are several ways to obtain information on ozone pollution levels. Harris County's Office of Emergency Management manages the Ozone Notice System, where you can subscribe to receive automatic e-mail notifications of ozone watches and warnings. The TNRCC also posts real-time information on ozone concentrations from continuous air monitoring stations. The closest monitor is HRM-8 LaPorte C608, located approximately 7.8 miles north-northeast of JSC on Fairmont Parkway. ■

Ozone Notice System: http://www.hcoem.org/Ozone_2001/pick_station.asp

JSC's nearest ozone concentration monitor: http://www.tnrcc.state.tx.us/cgi-bin/monops/daily_summary?608

Ripped from the ROUNDUP

Ripped straight from the pages of old Space News Roundups, here's what happened at JSC on this date:

1 9 6 6

With Ed White's first steps into space from the Gemini IV spacecraft, United States Extravehicular Activity got its start on an ambitious program of working in a new environment which will lead to man's first step on the moon.

To exist in the space environment, the two necessary ingredients for survival, air and pressure, must be taken along. In addition, the man must be protected from extreme temperatures and micrometeoroid punctures. In Gemini extravehicular equipment all of these safeguards are integrated.

1 9 7 6

The words "Touchdown! We have touchdown!" brought cheers of relief and excitement from members of the Viking Flight Team at 7:12 a.m. CDT, Tuesday, July 20. A long night of anxious anticipation had been rewarded with the successful landing of Viking 1 on Mars, and the degree of success was acknowledged by the exclamation "unbelievable" during the virtually perfect entry and landing sequence.

The reconstruction of the pictures on television monitors at the Viking Control Center was punctuated by cheers of congratulations among the participants, many of whom had been involved on the program for up to 15 years, and by a congratulatory telephone call from President Ford.

1 9 8 1

Officials at the NASA Lyndon B. Johnson Space Center Monday will honor a longtime supporter of the space program when they dedicate the Olin E. "Tiger" Teague Visitor Center.

The late U.S. Congressman Teague served from 1959-1978 on the House Committee on Science and Astronautics, the last five years as chairman. Before he became chairman of the committee, he headed the subcommittee on manned space flight. He was known as one of the most articulate supporters of the space program.

JSC's Bring Our Children to Work Day a success

By Eric Raub

The pitter-patter of little feet was heard all over JSC June 15 as the center hosted hundreds of youngsters for Bring Our Children to Work Day. The official observance, held at the Gilruth Center, provided two shows for the children, ranging in age from 9 to 15.

They went on a virtual tour of the International Space Station (ISS) in the Alamo Ballroom with the help of the "Virtual Astronaut" Web site.

NASA JSC 2001e19239 photo by David DeHoyos

NASA staff photographer David DeHoyos brought his daughter Leana to JSC on June 15 to participate in the Bring Our Children to Work Day event. Here Leana tries on an EVA glove.

Stacey Morrison, Cathy Gardner, and Steve Taylor from the Program Integration Office of the Space and Life Sciences Directorate led the children through the insides of the astronauts, as well as the insides of the ISS, with games like Neurosensory Jeopardy, Movement Memory and Immune Invaders.

In the gym the children were introduced to robots, gadgets and other projects from Chris Culbert and Jennifer Rochlis of the Automation, Robotics and Simulation Division. After a short discussion on what defines a "robot," the children saw examples, such as the Sojourner rover and the futuristic Rotating Bladder Robot (ROBLR).

They also saw a video about Robonaut, the advanced robot that resembles a human without legs. At the front of the gym robotic hand devices and a space-suit glove drew a crowd before and after the presentation.

The children received NASA bags with items provided by JSC, as well as from Cimarron, United Space Alliance, Boeing, Lockheed Martin and Spacehab. A special $1.95 double corn dog and fries lunch awaited those children who stayed on-site for lunch at either the Bldg. 3 or 11 cafeterias.

Bring Our Children to Work Day at JSC is about imparting a sense of the range of jobs at JSC and, hopefully, a little wonder and curiosity. Those behind the event hope that the children left with more than a stomach full of corn dogs and a goodie bag.

"With Bring Our Children to Work Day we always strive to portray the diversity of the work and workforce of JSC," said organizer Jessie Hendrick of the Equal Opportunity Programs Office.

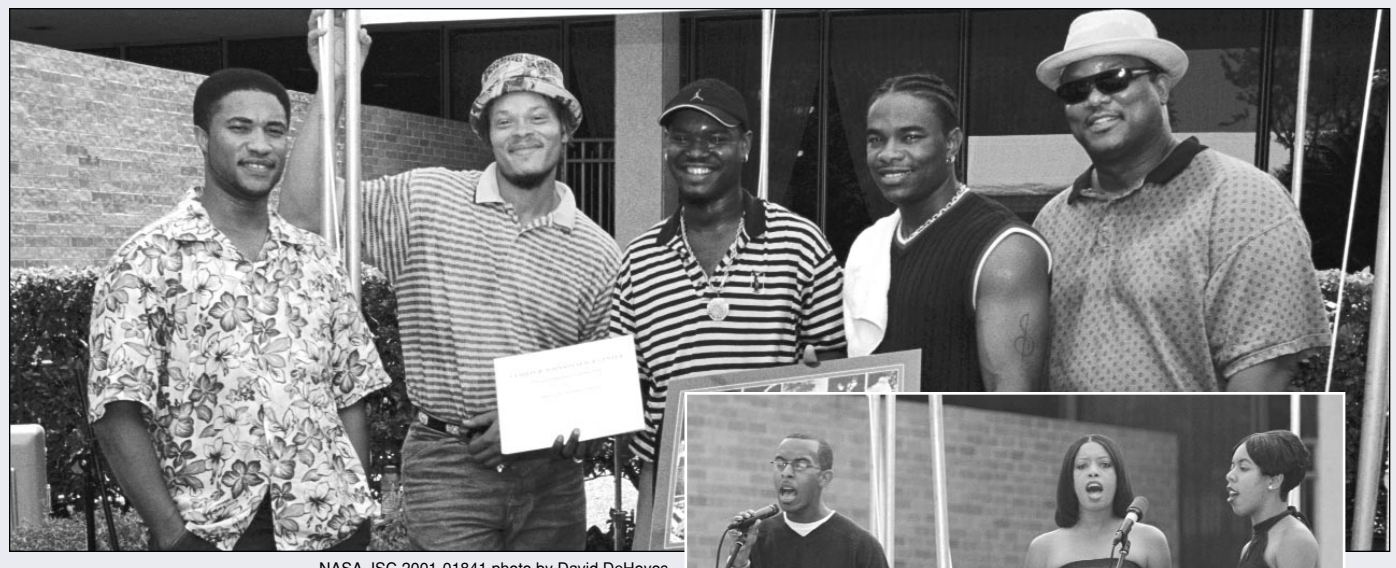
"It's important to show the kids all of the different kinds of things that are going on, as well as the different kinds of people doing them, so that they'll start to think nothing is beyond their reach."

For more information on the "Virtual Astronaut" Web site visit:
http://virtualastronaut.jsc.nasa.gov

Mark your calendars!

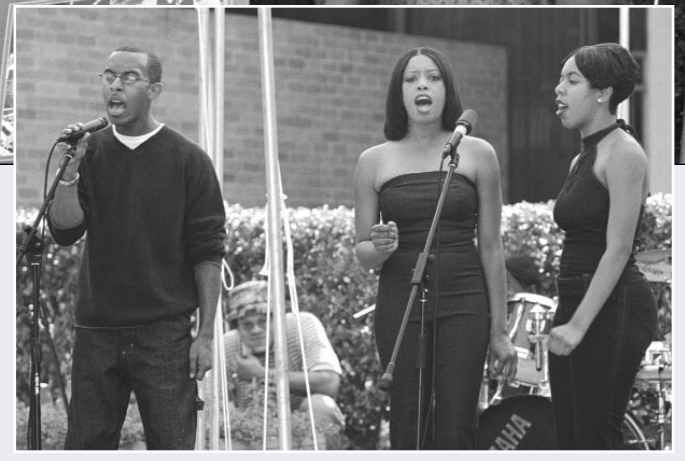
Back Safety Class, July 24
Computer Ergonomics Class, July 25
9:30-11:30, Building 30 auditorium
Call x36726 for information or to register

JSC celebrates Juneteenth



NASA JSC 2001-01841 photo by David DeHoyos

JSC staffers were treated to a special Juneteenth program on June 19, which was presented by the Equal Opportunity Programs Office. Performing at the event was J. Paul Jr. & the Zydeco Nu Breedz, pictured above. Also performing was Charles McGruder Jr. with his sisters Kim Bell and Tamara McGruder.



NASA JSC 2001-01843 photo by David DeHoyos

Paranormal investigator to speak at JSC

James Randi, critical investigator of paranormal and pseudoscientific claims, will give a lecture July 23 at 2 p.m. in the Teague Auditorium.

Randi is best known as an investigator of paranormal and pseudoscientific claims. He has pursued psychics who claim to bend spoons with their minds, exposed faith healers and others who claim to have supernatural powers or abilities.

He is a regularly requested speaker, having lectured or performed at such places as the White House, Cornell University, Harvard University, the Massachusetts Institute of Technology, Oxford University, Princeton University and Yale University. He has been a speaker at such organizations as the Exxon Research Club, General Electric, Los Alamos National Laboratory, Mensa, the National Geographic Society, the National Science Foundation and The Smithsonian Institution.

In the lecture entitled, "Search for the Chimera, An Overview of How Science has Pursued Magic and Miracles in the 20th Century and Into the 21st Century," Randi exposes some popularly accepted "fakery."

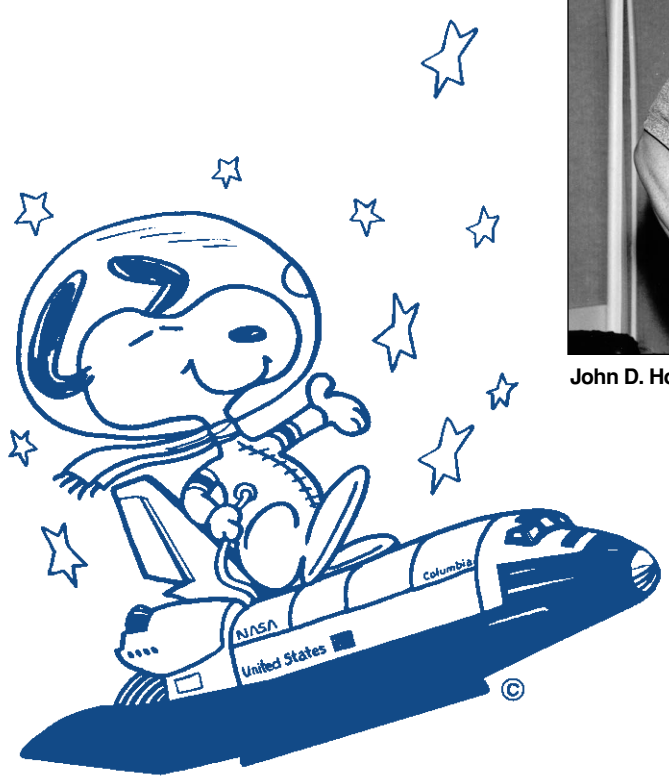
At the event Randi will make a presentation to the latest James Randi Educational Foundation scholarship winner, Jordan Good Weasel. Jordan, 14, is in the eighth grade at the Little Wound Middle School in Kyle, S.D. ■

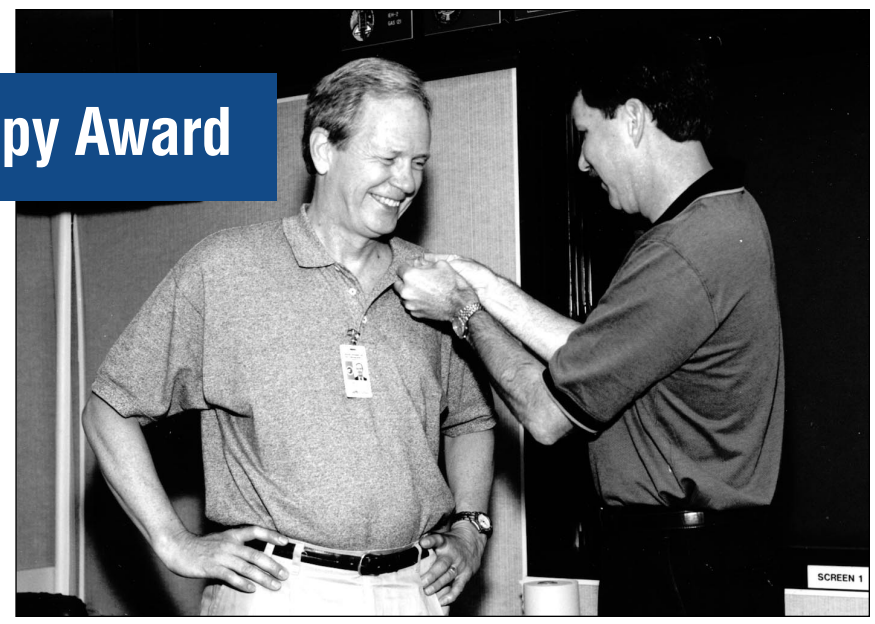
John D. Holt receives coveted Silver Snoopy Award

John D. Holt, AST, Technical Management, was recently recognized with a Silver Snoopy Award.

Holt, a Space Shuttle Flight Manager, was cited for being instrumental in ensuring that mission objectives were met on numerous Space Shuttle flights, including International Space Station (ISS) Assembly Flights, Hubble Space Telescope repair missions and other flights.

As Flight Manager, he leads large teams consisting of NASA civil servants from all NASA centers, contractor personnel across the country and Space Shuttle customers throughout the world. He is responsible for mission specific integration of mission requirements across multiple programs. According to his nomination, Holt continuously demonstrates excellent priorities and is able the lead his team to develop appropriate mission priorities. He and his teams continue to produce outstanding flight accomplishments. The success of these missions is essential in building the ISS. ■





John D. Holt, a Space Shuttle Flight Manager, recently received his Silver Snoopy Award.

Select employees receive the coveted Silver Snoopy Award in recognition of their contributions to this nation's human space flight programs. Recipients are featured in the *Roundup*.

Human Research Facility Team receives recognition

By Dennis Grounds and Gina Miller

On June 11, 2001, the NASA Human Research Facility (HRF) Project Management team presented recognition awards to the HRF team of civil servants and contractors at the Gilruth Center.

The HRF team develops, tests, integrates and certifies experiments for the International Space Station (ISS). They develop both the hardware and software as well as provide training, procedures, documentation and safety features. They have learned to be flexible and overcome challenges to successfully perform research in the evolving ISS program environment.

HRF Rack 1 was launched March 8, 2001, on STS-102 to join the ISS and begin fulfilling its mission of human research. It was the first research rack to be completed and reach orbit. The purpose of these awards is to recognize the accomplishment that resulted from a team effort begun more than four years ago.

The record of this success was demonstrated with the successful on-orbit activation of HRF Rack 1 on May 18, 2001. Researchers both on the ground and in space were excited by the activation of the first rack.

"It's an exciting day for Human Research," Astronaut Susan Helms said. "We have some real human research beginning."

HRF experiments include the Canadian Space Agency's H-Reflex, which measures adaptation of the neurovestibular system. The neurovestibular system helps people govern their senses of orientation, direction and balance, and it is adversely affected by the micro-gravity experienced in space.

Other experiments onboard include NASA's Interactions, a behavioral study of the interactions between crewmembers and ground personnel. The HRF suite of radiation experiments includes the Japanese Space Agency's (NASDA) Bonner Ball Neutron Detector, Dosimetric Mapping contributed by the German Space Agency (DLR) and the European Space Agency (ESA) and NASA's Phantom Torso.

At the awards ceremony, Dennis Grounds, Cindy Haven, Elizabeth Bauer and Ed Strong praised the efforts of the HRF Team and presented certificates bearing HRF patches that flew on STS-102. Additionally, it was announced that the Integration Team received a JSC Group Achievement Award for their outstanding contributions to the integration and testing of the HRF.

For more information on the HRF and radiation experiments onboard the ISS visit:
http://hrf.jsc.nasa.gov
http://www.nsbri.org/Radiation/

Certificate recipients included:

Design & Analysis Elias Azzi, Scott Fisher, Loren Francis, Naga Ganesan, Jim Glasgow, Henry Kao, Lindsey Leard, Debra Mancil, Chris Nunez, Shaji Ommen, Ravi Raviprakash, Mike Schlei, Caroline Shannon, Gordon Starkey, Mike Tseng, Chris Tutt, Doan Van

Experiment Support Alice Benham, Karin Bergh, Karen Borski, Brett Bray, Sherry Carter, Alicia Foerster, Michael Goodman, Stuart Johnston, Alex Kazerooni, Ara Kulhanjian, Karen Lawrence, Lisa Lubin, Christian Maender, Jessica Meir, Yvonne Parsons, Akash Patel, Elkin Romero, Gwenn Sandoz, Dea Taylor, Simone Thomas, Charlie Williamson

Hardware Development Clif Amberboy, Dan Barineau, Joe Bejarano, Ron Bennett, Sharon Campana, Gena Cegielski, Huong Charles, Geoff Coen, Kevin Collier, Adolfo Colorado, Doc Curtner, Sue Dalmeida, Gary Dalrymple, Jacob Davila, Joel Falcon, Jake Fox, Darlene Girouard, Phillip Good, Tim Haley, Javier Jimenez, Mae Johnson, Matthew Kieron, Kay Kreinhop, Jim Kukla, Samme Lansdowne, Al Leyman, Sue MacLoughlin, Jerry McDonald, Trent Mills, Cathy Modica, Laura Nichols, Peter Nystrom, Brandon Ruiz, Robert Scully, Silvia Sorto, Grant Threatt, Keith Tucker, Paul K. Vincent, Larry Wallace, Derek Wootan, Richard Yao

Human Factors Jurine Adolf, Jason Beierle, Crista Davis, Cindy Hudy, Steve Shostack

Integration Carlos Aguilar, Sherman Fetzer, Gaschen Geissen, Robert Gonzalez, Bobby Henneke, Jim Hoge, Ken Kaufman, Lindy Kimmel, Kelly Lajaunie, Todd Leger, Cheryl McGee, Tom Meyer, Dave Muecke, Donna Reed, Brian Rhone, Ed Smith, Sterling Tarver, Mary Trenolone, Bob Trittipo, Marion Trotti, Kevin Upham, Paul A. Vincent, Tom Wiggins, Elton Witt


NASA JSC 2001e18366 photo by David DeHoyos
Dennis Grounds, NASA HRF Project Manager, makes opening remarks at the ceremony.


Astronaut Susan J. Helms, Expedition Two flight engineer, works at the HRF Ultrasound Flat Screen Display and HRF Keyboard Module in the Destiny/U.S. Laboratory.

NASA Mark Anderson, Liz Bauer, David Baumann, Mel Buderer, Ven Feng, Rafael Garcia, Cindy Haven, Michelle Kamman, Angie Lee, Suzanne McCollum, Bob Patterson, Lak Putcha, Albert Rodriguez, Charles Sawin, Todd Schlegel, Suzanne Schneider, Charlie Stegemoeller, Ed Strong, John Uri

Operations Joe Dardano, Jody Dyke-Eichblatt, Dan Dzierski, Sondra Fabian, Ann Harris-Hoover, Ken Hartensteiner, Ruxton Istre, Lea Jarvis, Kipp Larson, Gerald Lewis, George Lutz, Don Marek, Eric Morris, Cathy Richard, Glynda Robbins, Tim Snyder, Erin Steele, Robert Strahan

Project Management Debbie Babic, Sharad Bhaskaran, Ed Bowers, Paul Campbell, Colleen Cardenas, Cynthia Connor, Lisa Durham, Mike Elliott, Tanya Fowler, Laurie Griffiths, Patti Holler, Kraig Keith, Chuck Miller, Gina Miller, Earl Mills, Magi Morgan, Alan Nordheim, Mark Pickett, Brad Rhodes, Gloria Salinas, Gloria Spikes, Saing Svay, Pam Tauler, David Voss, Nancy Wilson, Ron Wingerson, Mete Yalcinkaya

SR&QA Linell Arnold, Ron Coats, Masi Iwasa, Sean Nealon, Frances Simmons, Mark Sobek

Science Data Systems Afzal Ahmed, Farah Ahmed, Fred Amlee, Nasser Ayub, Ron Cast, Abul Chowdhury, Mitchell Christenberry, Chuck DiFalco, Monazer Faruque, Azad Haq, Rich Harris, Yinfen Hwang, Jonathan Johnson, Ramin Monjazeb, Mike Prodham, Hasan Rahman, Syed Rahman, Paul Salomon, Carol Warren, Hong Xia

Software Development Wendy Cohen, Margaret Klee, Henry Ong, Tom Rodgers, Mike Romell, Latha Selvan, Mackeet Simpson

Systems Engineering Dave Barb, Jack Bilanovic, Ellen Bille, Dan Cook, Iva Doyle, Mohamed El-Sabagh, Susan Ezell, Ron Frantz, Bret Garner, Cheryl Good, Mark Morshedi, Jim Thompson, Maria Trevino, Larry Walters, Owen Woghiren

Technical Data Services Stephanie Blackmer, Sandra Buso, Cynthia Collins, Almeta El-Said, Carrie Gilder, Lori Hanley, Leslie Hovland, Annie Hughes, Wynona Johnson-McAfee, Frederic McCleskey, Maria Potter, Taryn Richmond, Josie Turner

Training Sherry Ballentine, Bryan Dudley, Wanda Ginn, Paul Miller, Cherice Moore, Lynn Pickett, Melissa Ririe, Joyce Schultz, Jim Searcy, Jeannie Wood

DATES & DATA

July 18

Scuba club meets: The Lunarfins meet at 7:30 p.m. For more information contact Mike Manering at x32618 or checkout www4.jsc.nasa.gov/ah/ExcEAA//leisure/Lunarfins/default.htm

Spaceteam Toastmasters meet: The Spaceland Toastmasters meets on Wednesday mornings at 7 a.m. at the House of Prayer Lutheran Church 1515 Bay Area Blvd at Reseda. For details, contact Ava Sloan at 713-768-6336 or asloan@hal-pc.org

Spaceteam Toastmasters meet: The Spaceteam Toastmasters meet at 11:30 a.m. at United Space Alliance, 600 Gemini. For details contact Patricia Blackwell at 281-280-6863.

July 19

Communicators meet: The Clear Lake Communicators, a Toastmasters International club, meets at 11:30 a.m. at Wyle Laboratories, 1100 Hercules, Suite 305. For details contact Allen Prescott at 281-282-3281or Richard Lehman at 281-280-6557.

July 26

Radio Club meets: The JSC Amateur Radio Club meets at 6:30 p.m. at Piccadilly, 2465 Bay Area Blvd. For details contact Larry Dietrich at x39198.

August 2

Warning System Test: The site-wide Employee Warning System performs its monthly audio test at noon. For details contact Bob Gaffney at x34249.

August 6

CLA-NSS meets: The Clear Lake area chapter of the National Space Society meets at 6:30 p.m. at the Parker Williams Branch of the Harris County Library at 10851 Scarsdale Blvd. For details contact Murray Clark at 281-367-2227.

NSBE meets: The National Society of Black Engineers meets at 6:30 p.m. at Texas Southern University, School of Technology, first floor. For more information contact Kimberly Topps at 281-280-2917.

August 7

Quality Society meets: The Bay Area Section of the American Society for Quality meets at 6 p.m. at the Franco's Restaurant. For more information contact Ann Dorris at x38620.

August 8

MAES meets: The Society of Mexican-American Engineers and Scientists meets at 11:30 a.m. in Bldg. 16, Rm. 111. For details contact Margaret C. Delgado at 713-643-6097 or mcdelgad@aol.com.

August 9

Airplane Club meets: The Radio Control Airplane Club meets at 7 p.m. at the Clear Lake Park building. For more information contact Bill Langdoc at x35970.

August 13

Aero Club meets: The Bay Area Aero Club meets at 7 p.m. at the Houston Gulf Airport clubhouse at 2750 FM 1266 in League City. For more information contact Larry Hendrickson at x32050 or checkout www.bayareaaeroclub.org

IAAP meets: The Clear Lake/NASA Chapter of the International Association of Administrative Professionals meets at 5:30 p.m. in the Colonial Room at Grace Community Church, 14325 Crescent Landing. Cost is $12 payable at the door with advance reservations through Jackie L. Almanza at 281-244-7274. See www.iaap-clnac.org for more information.

GILRUTH CENTER NEWS

Sign-up policy:

All classes and athletic activities are on a first-come, first-served basis. Sign up in person at the Gilruth Center and show a yellow Gilruth or weight room badge. Classes tend to fill up two weeks in advance. Payment must be made in full, by cash or by check, at the time of registration. No registration will be taken by telephone. For more information, call x33345.

Gilruth badges:

Required for use of the Gilruth Center. Employees, spouses, eligible dependents, NASA retirees and spouses may apply for photo identification badges from 7:30 a.m.-9 p.m. Monday-Friday and 9 a.m.-2 p.m. Saturdays. Cost is $14. Dependents must be between 16 and 23 years old.

Open from 6:30 a.m.to 10 p.m. Monday-Thursday, 6:30 a.m. to 9 p.m. Friday, and 9 a.m. to 2 p.m. Saturday. Contact the Gilruth Center at (281) 483-3345.
http://www4.jsc.nasa.gov/ah/exceaa/Gilruth/Gilruth.htm

Nutrition intervention program: This is a free seven-week program designed to provide an understanding of the role diet and nutrition play in health. The program includes a series of lectures and private consultations with a dietitian. You will learn how to use dietary vitamins, minerals and herbal nutriceuticals for optimizing health. Classes are held on Wednesdays from 4-5 p.m. For details call Tammie Labiche, registered dietitian, at (281) 483-2980.

Defensive driving: One-day course is offered once a month at the Gilruth Center. Pre-registration required. Cost is $25. Call for next available class.

Stamp club: Meets every second and fourth Monday at 7 p.m. in Rm. 216.

Weight safety: Required course for employees wishing to use the Gilruth weight room. Pre-registration is required. Cost is $5. Annual weight room use fee is $110. The cost for additional family members is $58.

Exercise: Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is $24 for eight weeks.

Step/bench aerobics: Low-impact cardiovascular workout. Classes meet from 5:25-6:25 p.m. Tuesdays and Thursdays. Cost is $40 for eight weeks.

Cardio-Kickboxing: Medium impact. Learn basic kicking and punching. Tuesday and Thursday 5:30-6:30 p.m. Cost is $40 for eight weeks.

Yoga stretching: Stretching class of low-impact exercises designed for people of all ages and abilities in a Westernized format. Meets Thursdays 5-6 p.m. Cost is $40 for eight weeks. Call Darrell Matula, instructor, at x38520 for more information.

Ballroom dancing: Classes meet Thursdays from 6:30-7:30 p.m. for beginner, 8:30-9:30 p.m. for intermediate and 7:30-8:30 p.m. for advanced. Cost is $60 per couple.

Fitness program: Health-related fitness program includes a medical screening examination and a 12-week individually prescribed exercise program. For more information call Larry Wier at x30301.

Aikido: Martial arts class for men and women. Beginners meet Monday 6:30-7:30 p.m and Wednesdays 5-6 p.m. Advanced students meet Tuesday and Wednesday 5-6:30 p.m. No special equipment is needed. Aikido teaches balance and control to defend against an opponent without using force. Classes run monthly. Cost is $45 per month. Visit a class for more information.

NASA BRIEFS

EUROPEAN SPACE AGENCY AND NASA SET NEW CASSINI-HUYGENS PLAN

Managers for an international mission to Saturn have announced a revised plan to work around a telecommunications problem and avoid loss of scientific data after the Cassini spacecraft releases the Huygens probe to descend to the surface of Titan, Saturn's biggest moon, in 2005.

The new plan will change the planned release date and geometry for the part of the mission in which the Huygens probe will parachute into the thick atmosphere of Titan. The new date will be Jan. 14, 2005, seven weeks later than originally planned. The plan will also position the Cassini orbiter farther away during that descent.

The Cassini-Huygens mission was launched in 1997. Engineers last year identified a design flaw in the Huygens communications system. Without a change in flight plans, the Huygens receiver would be unable to compensate enough for the Doppler shift in radio frequency between the signal emitted by the probe and the one received by the orbiter. A Doppler shift happens when the distance between a transmitter and receiver is changing, and Cassini originally would have been rapidly approaching Titan during Huygens' descent. This would have resulted in the loss of important data from the probe during its trip through Titan's atmosphere.

NEW SOLAR-POWERED HYPERION ROBOT STAYS IN SYNC WITH THE SUN

A new robotic explorer, smart enough to know when it's lost or in trouble and designed to follow the Sun in a whole new way, is ready to face its first test in the harsh elements of the Canadian Arctic.

The prototype robot, named Hyperion, has the potential to be self-sufficient and will help researchers test a technique called Sun-synchronous navigation. Sun-synchronous navigation involves tracking the Sun while exploring terrain. If Hyperion is successful, future autonomous robots could obtain continuous solar power for long-term exploration of distant planets and moons.

The robot must know its position and orientation with respect to the Sun while it explores its surroundings. It navigates to capture enough sunlight to power itself while traveling through rough terrain and trying to reach important scientific objectives.

The field experiments with Hyperion will take place in Nunavut, Canada, on the hilly, rock-strewn terrain of Devon Island, the largest uninhabited island in the world. There is a narrow window, between July 10 and July 20, to conduct the experiments.

Hyperion is a concept vehicle designed to operate only on Earth. Robots designed for flight missions would require specialized components, such as space-qualified motors and computers.

SPACE CENTER Roundup

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